

**Program Assessment - A New Performance-based Program
Evaluation Paradigm for the National Sea Grant College
Program**

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I. Introduction

From 1998 through 2001, the National Sea Grant Office (NSGO) conducted 30 Program Assessments (PA) of state Sea Grant programs utilizing a new performance based review tool developed by Sea Grant. Using benchmarks of expected performance state programs were evaluated in the areas of long-range planning, program management, connecting to users and producing results. Program Assessment was conducted in a two-step process, a site visit by a panel of peers followed by a review by NSGO staff. By weighting the review categories the emphasis of assessment was placed on outcomes and impacts.

The evaluation tool¹ was designed to meet the requirements of the 1998 Sea Grant legislation and the 1993 GPRA requirements. The experience Sea Grant has had implementing the PA review process is of particular relevance to federal government agencies and departments because the process closely resembles the new Performance Assessment Rating Tool (PART) which the Office of Management and Budget (OMB) is currently refining as one element of the assessment process it will use in the FY 2004 Budget Review. In this article we detail the PA process, and review the results of our four years of experience with the evaluation paradigm.

II. The PA Process

A. Background

The National Sea Grant College program, a program designed to emulate the Land Grant Program, is intended to utilize the intellectual resources of Universities to address issues involving the coastal ocean and the Great Lakes. Many Sea Grant College programs reside at Land Grant universities in coastal states (see Fig .1). All Sea Grant programs support a portfolio consisting of research, education and outreach projects. Each Sea Grant program is responsive to both state (local) and national (corporate) needs and opportunities. Sea Grant programs differ in as many ways as they are similar. The issue of how to evaluate the diversity within the state programs (local empowerment) while maintaining a national set of standards (common expectations) resulted in the development of an innovative procedure, the Program Assessment review process, that was implemented for four years, 1998-2001, and is discussed in some detail below.

B. Goals and Objectives

The goal of the Sea Grant PA is to improve and strengthen the National Sea Grant College Program.

The Sea Grant PA was designed with the following objectives in mind, listed in order of importance:

- Provide advise and feedback to the Sea Grant Programs to strengthen them and encourage improvement.
- Provide a clear demonstration that institutional programs are achieving the goals of the Sea Grant Act though compliance with high standards of excellence.
- Stimulate, through identification of best practices, improvements in performance of the entire Sea Grant Network.
- Encourage new and innovative approaches to issues and problems throughout the network.
- Provide a basis for identification of program accomplishments to stakeholders and to the general public.
- Provide a basis for rewarding excellence in performance through resource allocation.

¹ Evaluation of Sea Grant College Programs: Recommendations for the Protocol, Criteria and Scheduling for Program Evaluation. B.J. Copeland, Bernard Griswold, Carlos Fetterolf. 1997

- Provide a mechanism through which national priorities and standards could be implemented throughout the network.

C. Methodology

1. The Program Assessment

Evaluation of each Sea Grant (SG) program is conducted once every four years. The review consists of two phases; site visits by an outside team of experts/peers (3-5 days) followed several months later by a shorter review (1/2 day) that takes place at the national office conducted by the Director of Sea Grant and the SG national office staff. The second phase of the process was implemented to reflect the national dimension of the program and to ensure that the site visits were standardized. Participants of each component of the review utilize the same set of criteria and performance benchmarks that are discussed below.

At the start of the PA process in 1998, individual state SG programs self-selected the year they wished to undergo evaluation. Some exceptions were made for programs that were deemed by the national office in need of evaluations earlier or later in the process. Either 7 or 8 programs are reviewed each year.

2. The Program Assessment Team (PAT)

The Director of the national office in consultation with the program officer and the director of the Sea Grant program decide membership on the Program Assessment Team (PAT) that conducts the PA site visit. Components of PATs can be found in Table 1. A summary of the PAT composition for FY 1998 and FY 1999 can be found in Table 2. The appropriate program officer accompanies the PAT as an ex-officio member of the team.

3. The PA Site-Visit

The PA site visit lasted from 3-5 days. To attempt to standardize the PAs, each PAT was given a manual containing the material listed in Table 7. The program officer reviewed the PAT manual with the team during a training session telephone conference call prior to the site visit. The Chair of the PAT, the NSGO program officer and the director of the state Sea Grant program, determined the agenda for the team visit. The visit was usually 3-5 days and included briefings by the Sea Grant staff including extension staff, university researchers, and visits with the user community, university administration, state and federal representatives.

4. Performance categories and benchmarks

While the broad perspective and diversity of peer reviewers is critical to the evaluation of complex scientific academic programs like Sea Grant, it is important that there be well-defined criteria to assist the reviewers in their task. In addition, evaluation categories need to be weighted with regard to their importance to overall performance. The following are the categories and their priority weighting.

- Long-range Planning - 10%
- Organizing and Managing - 20%
- Connecting with Users - 20%
- Producing Significant Results - 50%

Questions to guide thinking in each category are included in the PAT manual. A sample of the questions for the category of "Strategic Planning" can be seen in Table 4. Each category and its performance benchmark is reported in Table 2.

5. The PAT Report

Prior to the end of the PA, the PAT produces a 5-10 page review of the program, each section referring to the categories and the criteria. The contents of the PAT report are shared with the Sea Grant director of the program begin reviewed as well as with the University Administration prior to the departure of the PAT. A final copy of the review is sent to the Director and the University Administration within four weeks of the PAT.

6. Rating System – Phase I and Phase II

While in the first year of the program there were only three ratings, Excellent, Good and Needs Improvement, a fourth rating, Very Good, was added preceding the second year of the reviews at the request of the reviewers. The ratings are defined in the following manner:

- A program that generally meets the "Expected Performance" benchmark was rated as Good.
- A program that did not reach the benchmark was rated Needs Improvement.
- If the benchmarks of "Expected performance" were generally exceeded, the program was rated Very Good.
- If the benchmarks of "Expected Performance" were substantially exceeded, the program was rated as Excellent. It was stated that an excellent program does the things expected of it exceptionally well. To be rated an excellent program overall, a program must at a minimum:
 - Be rated excellent in "Producing Significant Results"
 - Normally be rated excellent in Connecting with users
 - Normally have no "Needs Improvement" ratings

There was a different rating system used for PA Phase II, the National Office review. Programs were rated from 1-4 with 4 signifying programs that have significant deficiencies and unsatisfactory performance, categories 1 and 2 reserved for programs that achieve the highest levels of performance and Category 3 denoting programs that simply meet performance benchmarks.

PA Phase II used the same categories and benchmarks as Phase I to evaluate programs. The rating of the PAT is incorporated and weighted heavily in the Phase II rating. Final program ratings (derived at the end of Phase II) reflect a consensus from both the Phase I and Phase II assessments and give a rating for how well a program has performed in relation to the evaluation criteria over four years. It was this rating that was used to determine the merit funding given to each program each year. A final assessment report is written at the end of Phase II that documents the final PA grade. This report is sent to the state SG program director as well as to the University Administration. An accompanying letter, sent only to the SG director, also documented the merit funding.

7. Merit Funding

Assignment to rating category 4 in the final program evaluation implies substantial corrective actions and no merit funding. Programs assigned to categories 1,2 or 3, qualify for merit pool allocations (at different levels) over the following four years. The merit pool allocation consists of two parts, a minimum allocation that is fixed and available annually for each of four years, and a residual share component that is variable and may change each year depending upon the performance ratings of all programs that have been

reviewed. Added together, these two components – the minimum allocation and the residual share – determine each program's merit funding allocation for a given year. The merit pool allocations are set up in this manner so that all programs will have the same merit funding opportunities, regardless of the year they are reviewed. See merit-funding Table 7.

III. PA Results

Table 5 summarizes four years of final evaluation ratings for the SG programs. The ratings and some associated BMPs are discussed below according to the rating category.

Producing Significant Results - Performance in this criterion, weighted at 50%, was consistently high for all programs in all years. No program was ever rated a 4 in this category and the average grade in this category was a very high 1.3 for all four years. In the collective opinion of all the reviewers all programs have made significant contributions to science and engineering. Importantly, these contributions were seen to be of demonstrable benefit and have impact on citizens and businesses around the nation.

While a list of all the accomplishments would be much too long, a few examples stand out and are mentioned in Table X.

Several Best Management Practices (BMPs) were identified in this category. One that stands out for its impact on the network is the development of a useful tool called the "phylogeny". This very innovative and useful reporting format for the results of a project showed in schematic format all the inputs and outputs of a project, throughout the years. An example of a simple phylogeny is given in Figure X. This very useful mapping of a project and its progress has become the standard for describing the complex, multidisciplinary manner in which projects are developed and implemented over time in a Sea Grant program.

Connecting with Users - Reviewers consistently remarked that the SG programs do an excellent job of getting science-based information to critical constituencies through their extension, education and communication networks. This critical function is one in which Sea Grant has unique strength. This is demonstrated by the fact that the average grade in this category was 1.3 for all four years.

The user community gave some of the most powerful testimony during PAT site visits. An example of this testimony follows: **Insert testimony from RI PAT report and others.**

Again several BMPs were identified in this category. The ones which stand out for current and potential adaptation by the network is "Coast Day" which involves SG outreach to the entire state one weekend a year as well as a state legislature/congressional day where state and federal legislatures and their families are given an opportunity to learn about issues in which SG is involved.

Organizing and Managing - The collective average for this category over four years was 1.9. Some of the often-mentioned issues in this category were the placement of the SG program in the University Administrative structure; the level of state support; the involvement of an advisory body to the program; attracting a range of faculty – both new and seasoned, men and women; and the project review process. This assessment category was used to implement a national policy that required each program to have an advisory body in place, and follow a peer-review process proscribed by the national office.

In this category some BMPs were identified that had a big impact on the network. Novel methods of attracting new faculty were deemed BMP's in three programs. These methods included using Program Development funds for new investigators and initiating a mini-grant program for new investigators. Five programs had computer or web based project-tracking systems which were deemed BMPs and that other programs have copied or bought into in the past few years. A BMP using "rapid response funds" in two programs was identified as a way "to support extension agents, researchers and state agencies in responding to rapidly developing situations such as sudden disease outbreaks or the appearance of a new nuisance species".

Long-range Planning - The review process revealed the continuing need for improvement in many of the programs in the area of strategic planning and implementation. One third of the programs excelled in this area. Intensive efforts in improving strategic planning were made throughout the organization in response to the "fair" performance in the first year's review when some programs did not have a strategic plan in place. The PA process has been used to implement strategic planning in each program. BMPs in strategic planning were recognized in only four programs at the end of the first four-year cycle. One program developed a decision pyramid to assist in planning. In another identified BMP, a program successfully utilized research-planning workshops to guide their programs long-range and strategic scientific plans.

This round of PAs determined that programs had not yet dealt with the issue of self-assessment. This is an area that can be greatly improved in the second round of PAs. Two programs had a BMP in the area of self-assessment.

V. Discussion

By any measure, the PA process utilized by Sea Grant has been extremely successful in reaching the objectives set out for it. At the end of the first round of PAs, over half (55%) of the SG programs were rated in the highest category and 93% of the programs were rated in the top two categories. This demonstrates a high level of compliance within the network with the SG standards of excellence. This percentage also leaves room for improvement in the second round of PAs.

In all, a total of fifty-five BMPs were identified through the PA process; some are noted in the results section. This showcases one of the most productive aspects of the process. Through the BMPs, it was clear that the PAs had encouraged new and innovative approaches to issues and problems. A stellar example of this is the new methodology, the "phylogeny" that was invented and utilized to track long-term SG investments. The novel decision pyramid that was created and utilized for long-term strategic planning is another example. Several systems of long-term tracking of projects and results were created and implemented as described above. It is possible that in the future, the entire network will utilize one of the processes to track the national portfolio of projects, progress and impacts. Program of marine safety and survival were developed at several programs and their implementation has already documented lives saved. A novel program for education of municipal officials (NEMO) was created and many SG programs in the network have begun to adopt the program on their campuses, forming a nationwide network. The BMPs have been made public and shared throughout the network with the hope that programs will adopt and modify the ones that could work for them.

The PA process has allowed for the identification of program accomplishments to some important stakeholders during the PA process itself. The involvement of University administration in the PA process has provided the programs a chance to showcase their progress and products to university administration. Program accomplishments have been showcased to the PA team that may consist of various SG partners and stakeholders as well as other SG directors. The legislative and executive branch have likewise been appraised of the progress and accomplishments of the programs through this process as programs utilize the PA products for many other audiences. Importantly the PA has provided programs with an incentive to put into place a process to systematically track and analyze progress within the program. With these tracking programs in place, it is possible to identify accomplishments to any stakeholder.

Without question, the PA process has provided a quantitative basis for rewarding excellence in performance through resource allocation. Two percent of the Sea Grant budget is set aside for "merit funding" distribution according to the grade earned in the final evaluation of the program's performance. Using a formula created for the distribution of merit funding and described above, merit funding is distributed according to the final assessment grade and dependent upon the number of programs in each funding category.

This objective is a continuing process that has been very successful to date. Following the initiation of the PA process, all Sea Grant programs have a strategic plan in place that relates both to the National Sea Grant Strategic Plan as well as the NOAA strategic plan. The strategic planning process at most programs has developed to be much more formal and inclusive. Many programs, as described above, have project tracking systems in place. All programs have peer-review processes in place, which are subject to national office review as well as PA review. All programs have an advisory process that ensures user-community input into the program. The PA has allowed for the tracking of regional and multi-program initiatives that the national office has initiated. Some of the standards the national office is currently working on relate to a national database for program tracking and reporting progress as well as a standard method for grant submission. Areas that still need work (not all inclusive) are in the area of strategic planning, self-assessments and the development of network agreed upon metrics to better document and assess program accomplishments.

One of the most important consequences of the PA process was the recognition that metrics for the SG program need to be developed. Metrics that were developed during the first round of the PA by the programs are listed in **Table X**. New and more detailed metrics have been developed for the next round of PAs in a cooperative effort between the national office and the Sea Grant directors. (Jonathan – Do we want to write more about this here?)

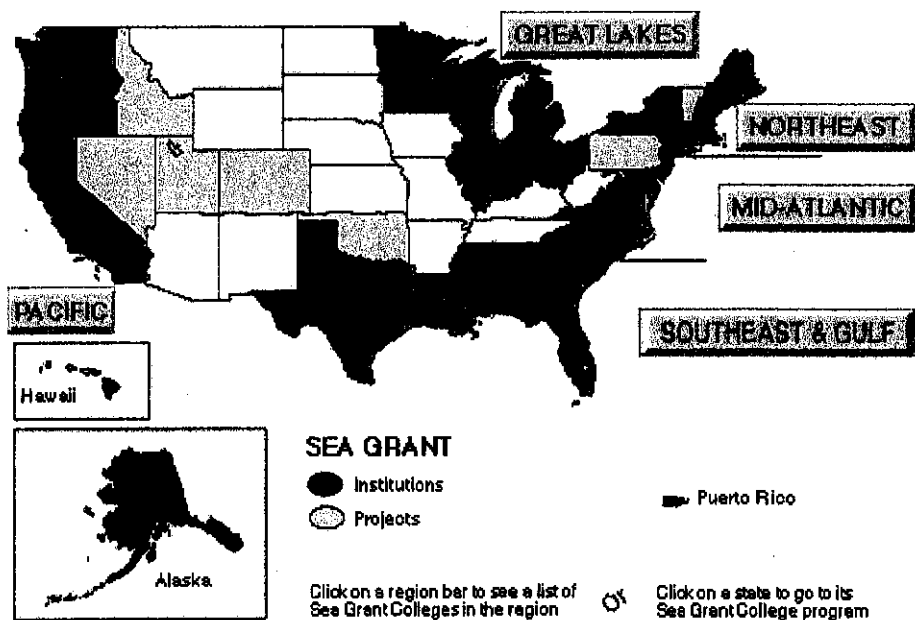


Figure 1

Table 1

Program Assessment Team Composition

- Chair - A senior person with high-level administrative or management experience from academia or the private sector who is familiar with Sea Grant objectives and programs.
- The Chair of the Sea Grant Review Panel will nominate the two National Sea Grant Review Panel (NSGRP) members. One Sea Grant Review Panel member will be the chair or vice-chair.
- One senior university representative (if not the Chair).
- Others (as appropriate for the program under review)
 - a. Directors of a Sea Grant program (not in the current cycle).
 - b. Officers of appropriate commercial and industrial entities.
 - c. Directors of institutes, centers, and laboratories.
 - d. Executives of State and Federal Resource Agencies.
 - e. Deans or Associate Deans of Other Institutions.
 - f. Directors of Cooperative Extension Programs or Experiment Stations.
 - g. Recognized practitioners in appropriate fields (research, extension, education, communication, etc.).

Table 2

**Program Assessment Team Composition
FY 1998 & FY 1999**

Federal Government	8
State and Local Government	2
Industry	4
NSGO	2
University Researchers and Admin.	37
Total	53

Table 3 Benchmarks of Performance

I. Long-range planning: The most effective programs will use the strategic planning framework from the NSGCP as a basis for developing their own strategic plan based on needs at the state and local level as identified in collaboration with a constituency advisory group. Effective planning may also involve regional programs.

Expected Performance Benchmark: Planning ties local and regional needs and opportunities into the NSGCP Strategic Plan. Program advisors are actively involved in the process on an ongoing basis and the plan is subject to frequent review. While the plan is specific in terms of vision, goals, objectives, priorities, benchmarks, and expected outcomes, it is not so rigid as to preclude responding to issues and opportunities as they arise. Planning is done with other institutional and agency resources in mind, and complementary or supplementary programs are planned as appropriate. The biennial implementation plan builds on the strategic plan and provides specific performance milestones for that two-year period.

II. Organizing and Managing the Program (4 Criteria).

1. **Managing The Program And Institutional Setting:** Sea Grant programs are located within or work closely with university systems that are sites of major research and administrative activity. Each program must be managed to maximize the recruitment of outside financial and human resources to address Sea Grant problems and issues, as well as to build capability in the university system to address coastal problems and opportunities.

Expected Performance Benchmark: The program is located at a level within the university that enables it to operate effectively internally within the institution and externally with all sponsors, partners, and constituents. The institution provides the support necessary for the Sea Grant program to operate efficiently as a statewide program. A program management function as a true team and continuously strives to improve the operation of the program. The recognized abilities of the program management team for effectiveness, performance, objectivity and contributions result in requests for their participation in a leadership capacity in influential coastal groups at the local, state, and national levels. The source of matching funds is diverse and the program management is entrepreneurial in expanding the program with additional support from state and federal agencies, the private sector, and other sources. The Program maintains an active and well-chosen advisory group(s) that helps focus programmatic issues.

2. **Project Selection:** The program carries out a good peer review and evaluation process for research, education and outreach projects and selects those that receive consistently high marks for merit, application, and priority fit. The review must take into account how well a prospective project targets an issue.

Expected Performance Benchmark: There is a set of procedures in place that ensures quality control of all projects, guards against conflict of interest, and provides for the best and most appropriate projects to be included in the program in the context of program priorities as determined by the program's strategic and implementation plans. Projects are well planned, innovative and integrated across research and outreach. Research results are consistently reported in peer-reviewed publications. Outreach projects consistently accomplish stated outcomes.

3. **Recruiting Talent:** Every Sea Grant Program has a variety of talent available for program development. The best efforts will involve the best talent. The program must have mechanisms in place to identify and attract the best talent available for principal investigators, staff, volunteers, and advisors.

Expected Performance Benchmark: Programs have exceptional talent available to them, but that talent needs special encouragement to participate in the core program and in national competitions. Procedures exist to locate and attract the best talent available to the program to meet programmatic goals and objectives. University protocols exist to allow inclusion of that talent. The program consistently recruits and builds teams of the best talent available to address important issues. As needs and opportunities arise, intellectual talent from the best possible sources is encouraged to band together to improve interdisciplinary research, education, and outreach capabilities. Opportunities to work with other Sea Grant programs and agencies are continuously explored and utilized to address regional and inter-institutional research and issues.

4. **Institutional Components within the Program:** It is important that research projects, advisory programs, and management, communications and education activities be appropriately integrated, work to advance their disciplines, and use state-of-the-art methods.

Expected Performance Benchmark: Each component of the program (Research, Education, Outreach, and Management) uses the most appropriate and effective methods and technology. All components strive to develop new and innovative approaches to achieve the program's goals. Each program component has areas of national leadership in its own right. These components, when added together, often result in outcomes and impacts greater than the sum of the individual contributions.

III. Connecting Sea Grant with users: Effective information transfer occurs most often when the end users are involved in the planning and development stages, the program has an extension process in the field, and there is a mechanism for follow-up with users. The program management team should interact at the state, regional, and national policy levels. At the university level, the Sea Grant Program must occupy an appropriate administrative and leadership position and be involved in decision-making.

Expected Performance Benchmark: A major function of an effective Sea Grant program is developing programs that address priority user needs and following through with effective extension/outreach programs to implement results and findings. To be effective, the institution must understand and support this role through its management practice and procedures in regards to outreach and education. The program should initiate and maintain contact with appropriate user communities for sustained periods. Constituents should be included in planning, technology transfer and information dissemination. The program should develop opportunities for strong in-kind or matching support for outreach. Opportunities to work with other Sea Grant programs and agencies are continuously explored and utilized to address regional issues.

IV. Producing Significant Results: The program produce significant results. A basic mission of Sea Grant is to integrate research and outreach to address and significantly impact the identified needs of its constituency, or the region and/or the nation.

Expected Performance Benchmark: Management procedures ensure the consistent production of significant results which will have widespread economic and/or social benefit, make significant contributions to science and engineering, and address the priority needs of the program's constituency. Educational programs maximize the development of highly trained students and enhance their potential for career development. Impacts of the program occur not only in the state and regions, but also nationally and even internationally. Planned project outcomes are consistently met or exceeded.

Table 4
Sample Evaluator Questions for Planning Category

I. EFFECTIVE AND AGGRESSIVE LONG-RANGE PLANNING (10%)

SUGGESTED CONSIDERATIONS FOR EVALUATORS

Strategic Plan.

- What mechanisms were used for determining priorities in the plan?
- Who wrote it? Who reviewed it?
- Does it contain vision, specific goals and performance targets?
- Does it integrate all aspects of the program, research, extension, communications and education?
- Is it a "safe" plan or does it set difficult goals and strive for breakthroughs to achieve them?
- Is it a risk-taking plan?
- When was it last updated?
- Who has endorsed it?
- What was the strategic planning process? Did it identify the organizations strengths weaknesses, opportunities and threats?
- Who provided input for the strategic plan? How were stakeholders identified? Internal stakeholders (communicators, educators, extension team)? External stakeholders (environmental managers, state/federal agencies, user groups)? How were they involved?
- At what stage of the Strategic Plan's development process were stakeholders (especially external stakeholders) provided an opportunity for input? What methodology was used to acquire input?

B. Implementation Plan.

- Does it follow the established guidelines for Sea Grant program implementation plans? (SGA Memo, February, 1996)
- Does it contain ambitious milestones for accomplishments and meaningful measures of success?
- Does it allow for risk taking with the possibility of failure?
- Have those who have to implement the plan bought into it?
- Did the Sea Grant program staff sufficiently demonstrate how the Plan is used as a basis for all aspects of program implementation?

Table 5
Sea Grant Performance Evaluation
Summary of Evaluation Ratings
1998-2001

<u>Criteria</u>	Long Range Planning (10%)	Managing for Success (20%)	Connecting with Sea Grant Users (20%)	Producing Significant Results (50%)	Overall Program Rating 1= Highest 4=Lowest
1998					
Range	1-4	1-4	1-3	1-2	1-3
Mean	2.6	2.4	1.5	1.3	2.0
N=8					
1999					
Range	1-3	1-2	1-3	1-2	1-3
Mean	1.7	1.6	1.3	1.4	1.6
N=7					
2000					
Range	1.3	1.2	1.2	1.2	1.2
Mean	1.8	1.4	1.2	1.1	1.1
N=7					
2001					
Range	2-4	1-3	1-2	1-2	1-2
Mean	2.2	2.0	1.3	1.3	1.6
N=7					
1998-2001					
Range	1-4	1-4	1-3	1-3	1-3
Mean	2.1	1.9	1.3	1.3	1.6
N=29					

Table 6

Program Standards Implemented Through PA

1. Strategic Planning
2. Proposal Request Process
3. Peer Review Process
4. Criteria for Evaluating Proposals
5. Conflict of interest criteria
6. Record Keeping
7. Project Tracking
8. Program Reporting
9. Advisory Committee Process
10. Portfolio distribution (% research, outreach)
11. Multiprogram and Regional emphasis

Table 7
Merit Pool Allocations

	Merit Pool Allocation for Each Rating Category		
<u>Merit Funding Rating Category</u>	<u>Minimum Allocation</u>	<u>Residual Share</u>	<u>Program Merit Funding</u>
Category #1	Min(Cat. #1) = Total Merit Pool / n	2x	Min(Cat #1) + 2x
Category #2	Min(Cat. #2) = 70% * Min(Cat. #1)	x	Min(Cat #2) + x
Category #3	Min(Cat. #3) = 40% * Min(Cat. #1)	Zero	Min(Cat #3)
Category #4	Zero	Zero	Zero

where:

n	Number of programs evaluated (8 currently ... 29 after 4 years)
x	Residual Share = ("Total Merit Pool" minus "Total of Minimum Allocations") / #Shares (where #Shares = 2 times number of programs in "Category #1" plus the number of programs in "Category #2")

Table 8

Table of Contents for PA Manual

- I. Role of the PAT (includes objectives of the PAT)
- II. PAT Process (Includes team composition and time line for planning and executing PAT, includes information regarding the final report and the Phase II evaluation by the NSGO)
- III. Policy for PAT Chairs and Vice Chairs (includes duties and responsibilities of the Chair)
- IV. Guidelines for PAT Chairs (Includes information for setting up the review visit and agenda)
- V. Performance Benchmarks for Evaluation - Rating Sheets and sample questions for each criterion
- VI. PAT Survey (requests information regarding the PAT experience and future recommendations for improving the process)